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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/675,227	09/29/2003	Hiromichi Watanabe	51274/DBP/A400	9869

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EXAMINER	
NORRIS, JEREMY C	
ART UNIT	PAPER NUMBER
2841	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	02/23/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/675,227	WATANABE ET AL.	
	Examiner	Art Unit	
	Jeremy C. Norris	2841	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *13 October 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-3 and 5-16* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☐ Claim(s) *1-3 and 5-16* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *29 September 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 13 October 2006 has been entered.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-3 and 5-8 are rejected under 35 U.S.C. 102(b) as being anticipated by US 5.564.954 (Wurster).

Wurster discloses, referring primarily to figures 1 & 2, a press-fit terminal (12) comprising: a press-fit section (14) press-fitted into and held by a through-hole (18) provided on a wiring board (16), the press-fit section comprising: a pressure retaining part configured to exert a first elastic force for holding the-press- fit section press-fitted into the through-hole; an introducing part (below 42 as shown in figure 2) configured to exert a second elastic force having a second intensity lower than a first intensity of the

first elastic force; and an aperture (22) extending in an axial direction of the press-fit section and formed in the pressure retaining part and the introducing part [claim 1], wherein said introducing part is formed so that a diameter of the introducing part is gradually reduced when it comes to an end portion [claim 3], wherein a cross-sectional area of said introducing part is smaller than that of said pressure retaining part [claim 5], wherein when an aperture of said introducing part is formed being extended in the axial direction toward an end portion, the cross-sectional area of the introducing part is adjusted [claim 6], wherein a region of said aperture corresponding to the pressure retaining part is formed small, and a region of the aperture corresponding to said introducing part is formed large [claim 7], wherein the region of said aperture corresponding to the pressure retaining part is formed small so that a reduction in the elastic force of the pressure retaining part, which is caused when the cross- sectional area of said introducing part is decreased, can be made up [claim 8].

Similarly, Wurster discloses, an electronic equipment (10) comprising: a wiring board (16) having a through-hole (18); and a press-fit terminal _12) press-fitted into and held by the through-hole, wherein the press-fit terminal includes a press-fit section comprising: a pressure retaining part (42) configured to exert a first elastic force for holding the-press- fit section press-fitted into the through-hole; an introducing part (below 42 as shown in figure 2) configured to exert a second elastic force having a second intensity lower than a first intensity of the first elastic force; and an aperture (22) extending in an axial direction of the press-fit section formed in the pressure retaining part and the introducing part [claim 2].

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 9 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wurster in view of US 6,031,723 (Wieloch).

Regarding claim 9, Wuster discloses the claimed invention as described above except Wurster does not specifically disclose wherein said wiring board is composed of a laminated board [claim 9]. However, it is well known in the art to compose circuit boards of a laminated board as evidenced by Wieloch (col. 3, lines 50-65). Therefore, it would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to form the circuit board in the invention of Wurster of a laminated board as is known in the art and evidenced by Wieloch. The motivation for doing so would have been to allow for the simultaneous transmission of multiple signals.

Regarding claim 10, Wurster discloses the claimed invention as described above except Wurster does not specifically disclose that said wiring board is composed of a laminated board on which a plurality of glass fiber sheets are multiply laminated, and printed wiring is provided on the surface [claim 10]. However, it is well known in the art to compose circuit boards of a laminated FR4 (glass fiber) board as evidenced by Wieloch (col. 3, lines 50-65). Therefore, it would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to form the circuit board in the invention of Wurster of a laminated board as is known in the art and evidenced by Wieloch. The motivation for doing so would have been to allow for the simultaneous transmission of multiple signals in a board having additional structural rigidity.

Claims 11-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wurster in view of US 5,837,155 (Inagaki).

Regarding claim 11, Wurster discloses the claimed invention as described above except Wurster does not specifically disclose that said wiring board is made of a plurality of sheets multiply laminated by resin, and an elastic material is contained in the resin for combining-the sheets [claim 11]. However, Inagaki teaches a circuit board made of a plurality of sheets multiply laminated by resin, and an elastic material is contained in the resin for combining-the sheets (col. 9, lines 1-40). Therefore, it would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to form the circuit board in the invention of Wurster of a plurality of sheets multiply laminated by resin, and an elastic material is contained in the resin for combining-the sheets as taught by Inagaki. The motivation for doing so would have been to allow for the simultaneous transmission of multiple signals in a board resistant to cracking (Inagaki col. 9, lines 1-10).

Similarly, regarding claim 12, Wurster discloses the claimed invention as described above except Wurster does not specifically disclose wherein said comprising a wiring board is made of a plurality of sheets multiply laminated by resin, having a through-hole into which a press-fit terminal is press-fitted so that it can be held, wherein and an elastic material is contained in the resin for combining the sheets [claim 12]. However, Inagaki teaches a circuit board made of a plurality of sheets multiply laminated by resin, and an elastic material is contained in the resin for combining-the sheets (col. 9, lines 1-40). Therefore, it would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to form the circuit board in the invention of Wurster of a plurality of sheets multiply laminated by resin, and an elastic

material is contained in the resin for combining-the sheets as taught by Inagaki. The motivation for doing so would have been to allow for the simultaneous transmission of multiple signals in a board resistant to cracking (Inagaki col. 9, lines 1-10). Additionally, the modified invention of Wurster teaches, wherein said elastic material is made of elastic particulates dispersed in the resin of the board (Inagaki col. 9, lines 1-10) [claim 13], wherein said elastic particulates are made of acrylic rubber (Inagaki col. 9, lines 40-50) [claim 14], wherein said elastic material is filled in a surface layer portion of the board (Inagaki col. 9, lines 55-68) [claim 15].

Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wurster in view of Inagaki as applied to claim 12 above, and further in view of US 4,533,035 (McMonagle).

The modified invention of Wurster teaches the claimed invention as described above except modified Wurster does not specifically teach, wherein an inner circumferential face of said through-hole is made of metal, the hardness of which is higher than that of copper [claim 16]. However, it is well known in the art to form a through hole metal plating of nickel as evidenced by McMonagle (col. 4, lines 30-50). Therefore, it would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to form the through hole plating of modified Wurster of nickel as is known in the art and evidenced by McMonagle. The motivation for doing so would have been to use a material resistant to oxidation, thus resulting in more reliable electrical contact.

Response to Arguments

Applicant's arguments with respect to claims 1-3 and 5-16 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeremy C. Norris whose telephone number is 571-272-1932. The examiner can normally be reached on Monday - Friday, 9:30 am - 5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dean Reichard can be reached on 571-272-1984. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Jeremy C. Norris
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JCSN